

REMARKS

Claims 1-20 remain pending in the application, in which claims 1, 17, and 20 are currently amended. No claim is currently cancelled, or added. Applicants respectfully request for allowance of all pending claims 1-20 based on following discussions.

Rejections under 35 USC 102

Claim 17 is rejected under 35 USC 102(e) as being anticipated by PCT Patent Application Publication No. WO2004/005720 to Stellnert (hereinafter referred to as “Stellnert”).

Claim 17, as amended, is directed to a pumping arrangement comprising: a vacuum pump having a rotor element and a stator element, and at least one fluid port; means for monitoring the performance of the pump; means for receiving process data directly from a tool adapted to be evacuated by the pump, wherein the tool is configured to receive various gas streams for performing chemical reaction to produce a predetermined material; means for calculating fluid flow characteristics required to compensate for the accumulation of deposits on the internal working surfaces of the pump caused by exhaust gases evacuated from the tool by the pump based on the monitored performance of the pump and the process data of the tool; and means for introducing fluid into the pump at a localized area via the at least one port selected from a plurality of ports within the pump in accordance with the calculated characteristics for acting on deposits located on the element surfaces to enable the deposits to be removed therefrom in a manner that avoids back contamination of the tool by the fluid. It is noted that the underlined texts are currently added to the claim by amendment.

The added limitations are supported by the specification. For example, with reference to FIG. 8 of the application, the data indicative of the environment of a pump 31 and the data from a process tool 38 are supplied to a controller 30. *See, the specification, page 10, lines 17-20.* The controller 30 uses these data in combination to determine whether fluorinated gas

should be supplied to the pump 31 via ports 2 to counteract the formation of accumulated deposits. *See, page 10, lines 24-26.* The ports 2 within the pump 31 are fed by supply conduits 32 from gas supply 33 via valves 34. *See, page 10, lines 21-24.* The distribution

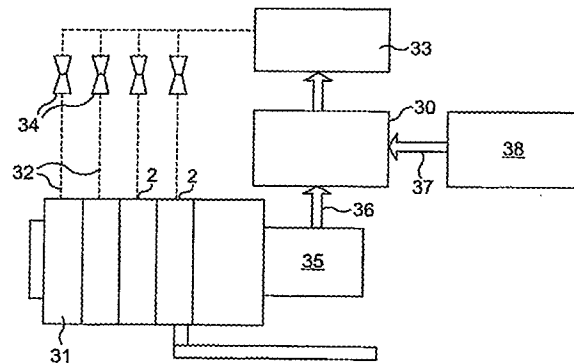


FIG. 8

of ports 2 allows the fluid to be readily concentrated in any particular problem area that may arise. *See, page 6, lines 22-23.* If, for example, a single port was to be used at the inlet 3 of the pump, this may have a detrimental effect on the capacity of by-products that could be transported away from the evacuated chamber by the pump. *See, page 6, lines 25-28.* By bringing solvent into contact with the rotor after the first few turns of the thread of the rotor, the likelihood of backward contamination of the solvent into the chamber will be reduced. *See, page 6, lines 28-30.*

Stellnert does not teach or suggest following limitations: 1) “the tool is configured to receive various gas streams for performing chemical reaction to produce a predetermined material”, 2) “means for receiving process data directly from a tool adapted to be evacuated by the pump”, and 3) “means for introducing fluid into the pump

at a localized area via the at least one port selected from a plurality of ports within the pump in accordance with the calculated characteristics for acting on deposits located on the element surfaces to enable the deposits to be removed therefrom in a manner that avoids back contamination of the tool by the fluid.” A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). Since Stellnert fails to teach or suggest the above-mentioned limitations, Applicants respectfully submit that it does not anticipate claim 17 under 35 USC 102.

Rejections under 35 USC 103

Claims 1, 12, 13, and 20 are rejected under 35 USC 103(a) as being unpatentable over Stellnert.

Claim 1 is directed to a method for managing deposits within a pump mechanism by introducing fluid suitable for dissolving, diluting or otherwise disengaging deposits which have accumulated on the internal working surfaces of the pump, the method comprising the steps of: (a) monitoring the performance of the pump; (b) receiving process data from, or directly associated with, a tool being evacuated by the pump, wherein the tool is configured to receive various gas streams for performing chemical reaction to produce a predetermined material; (c) calculating fluid flow characteristics required to compensate for the accumulation of deposits on the internal working surfaces of the pump caused by exhaust gases evacuated from the tool by the pump based on the

monitored performance of the pump and the process data of the tool; and (d) introducing fluid into the pumping mechanism at a localized area via a predetermined port selected from a plurality of ports within the pump in accordance with the calculated characteristics, thereby avoiding a backward contamination of the tool by the fluid.

Stellnert discloses a lobe pump suitable for milking animals. *See, Stellnert, page 8, lines 31-34.* As shown in FIG. 2 of

Stellnert, lobe pump 1 includes an injector pipe 13 capable of injecting water into the pump in order to dissolve the condensed milk deposited on the surfaces (14a, 18a and 19a) of the lobes (18 and 19) and housing 14.

See, page 13, lines 2-14. A control unit 10 controls the water injection

based on information, such as the

revolution, power consumption, and temperature of the pump received from revolution indicator 24, electricity meter 25 and temperature sensor 6, respectively. *See, page 11, lines 19-31.*

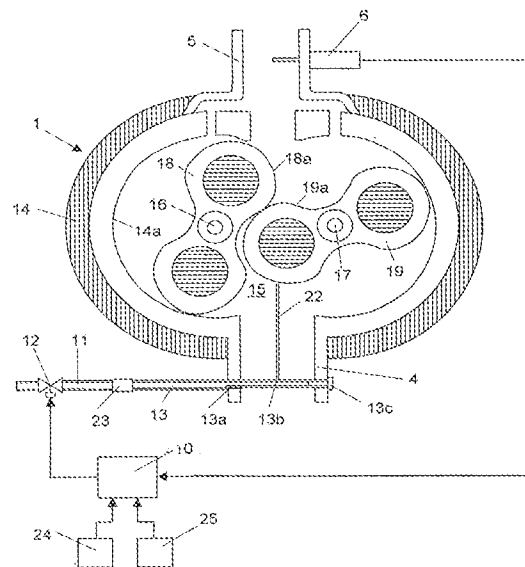


Fig 2

Stellnert does not teach or suggest “receiving process data from, or directly associated with, a tool being evacuated by the pump, wherein the tool is configured to receive various gas streams for performing chemical reaction to produce a predetermined material”. In Stellnert, the control unit receives signals only from the pump 1, instead of the “tool” being evacuated by the pump. Moreover, Examiner compares an animal to the

tool of the claimed invention. In the claimed invention, the tool is configured to receive various gas streams for performing chemical reaction to produce a predetermined material, which is clearly different from and incomparable to an animal being milked by a lobe pump.

Stellnert does not teach or suggest “calculating fluid flow characteristics required to compensate for the accumulation of deposits on the internal working surfaces of the pump caused by exhaust gases evacuated from the tool by the pump based on the monitored performance of the pump and the process data of the tool.” Stellnert teaches a control unit 10 that causes a water jet to be introduced into the lobe pump 1 in response to the monitored conditions of the pump 1. However, Stellnert does not teach or suggest that in addition to the conditions of the pump 1, the control unit 10 also depends on the conditions of a tool (or an animal in the context of Stellnert) in introducing the water jet into the pump 1.

It would not have been obvious for a person skilled in the art to modify Stellnert by introducing the water jet to the pump 1 based on the monitored conditions of both the pump 1 and animal being milked by the pump 1. The mere fact that references can be modified does not render the resultant modification obvious unless the prior art also suggests the desirability of the modification. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990). In Stellnert, there is no explicit or implicit suggestion of the desirability of controlling the water jet based on the conditions of the animal as well as the pump. It is impractical to monitor an animal in the same way as a tool would be monitored. Given the context of Stellnert, there is simply no need for a person skilled in the art to collect signals from an animal in order to clean a pump that milks the animal. The chemistry of milk does not

change from one application to another as gases in the tool do in a semiconductor manufacturing process. The pressure, flow rate, and other characteristics of the milk could not be manipulated in the same way as those of the gases in the tool could. In Stellnert, signals from the pump 1 alone are enough to decide when and for how long the water jet should be introduced into the pump 1. However, this is not the case in the claimed invention. For example, power consumption of a pump may not accurately indicate a gas outflow rate of a tool, because the power consumption can be heightened when there is clogging in the pump, while the gas outflow rate is perfectly normal.

Furthermore, Stellnert does not teach “introducing fluid into the pumping mechanism at a localized area via a predetermined port selected from a plurality of ports within the pump in accordance with the calculated characteristics, thereby avoiding a backward contamination of the tool by the fluid.” Stellnert does not teach any mechanism that enables localization of water injection. In fact, as shown in FIG. 2 of Stellnert, the location and orientation of the water jet 22 pose a high likelihood for the cleaning water to backward contaminate the inlet 2 of the pump 1.

As such, Applicants respectfully submit that claim 1, as amended, is patentable over Stellnert under 35 USC 103.

Claims 12, 13, and 20 depend from claim 1 and include all the limitations recited therein. Thus, Applicants respectfully submit that they are also patentable over Stellnert under 35 USC 103 by virtue of their dependency.

Claim 17 is rejected under 35 USC 103(a) as being unpatentable over Stellnert.

Claim 17 include limitations similar to those recited in claim 1. For the reasons discussed above, Applicants respectfully submit that it is also patentable over Stellnert under 35 USC 103.

Claims 2-10, 14-16, 18, and 19 are rejected under 35 USC 103(a) as being unpatentable over Stellnert in view of US Patent Application Publication No. 2002/0034880 to Sakai (hereinafter referred to as “Sakai”), US Patent No. 5,718,565 to Kuhn (hereinafter referred to as “Kuhn”), US Patent No. 6,224,326 to Puech (hereinafter referred to as “Puech”), and US Patent No. 4,995,794 to Wycliffe (hereinafter referred to as “Wycliffe”).

Claims 2-10, 14-16, 18, and 19 depend from independent claim 1, and include all limitations recited therein. Thus, Applicants respectfully submit that they are patentable over the cited prior art references under 35 USC 103.

CONCLUSION

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

Applicants do not believe that any additional fee is due, but as a precaution, the Commissioner is hereby authorized to charge any additional fee required by the submission to deposit account number 50-4244.

Respectfully submitted,

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